

Engineering Institute Presentation



S. Gareth Pierce
Department of Electronic & Electrical Engineering
University of Strathclyde, Scotland

“Reconfigurable Systems for Automated and Remote Non-Destructive Evaluation (NDE)”

Thursday, July 22, 2010
3:00 - 5:00 PM

**National Security Education Center, Los Alamos Research
Park, Suite 101A, Access Grid Conference Room**

Abstract: The presentation will provide an introduction to NDT (Non Destructive Testing) and NDE (Non Destructive Evaluation) refer to any sort of structural measurement that does not destroy the object under investigation Related to SHM (Structural Health Monitoring).

Common medical examples of NDT are X-rays: MRI scanning and Ultrasound imaging. There are many different techniques for NDE including: Radiography (e.g. x-ray) and they are: Optical / Visual Inspection, Electromagnetic (Eddy Currents/ Magnetic effects), and Ultrasonic. In conclusion, we hope to show an established requirement for an effective NDT/NDE inspection. Describe a Robotic NDE as part of activity of UK RCNDE (Research Centre in NDE) two inspection platforms with common hardware and show an Integration of NDE sensing techniques Ultrasonic, visual, eddy current, and magnetic flux leakage. Show how no single solution for positioning, require multiple techniques, combined using probabilistic methods accounting for measurement variance.

Biography: Dr S. Gareth Pierce is a lecturer in the Department of Electronic & Electrical Engineering at The University of Strathclyde in Scotland. He is based in the *Centre for Ultrasonic Engineering* where his research focuses on Non-Destructive Testing & Evaluation, (NDT&E), Structural Health Monitoring, Automated Robotic Inspection, Uncertainty Analysis in Dynamic Systems, Laser Ultrasonics and Optical-based Metrology Systems. Dr Pierce teaches in Measurement and Feedback Systems and Microcontroller Interfacing. He received his BSc (Hons) in *Pure and Applied Physics* (1989) and a PhD in *Fibre Optic Applications to Laser Ultrasonics* (1993) from The University of Manchester (UK).